REMARKS

Upon entry of the present amendment, claims 1-24 will be pending, with claims 25-38 withdrawn. Claim 1 has been amended to correct a minor typographical error. As such, Applicants believe no new matter has been introduced by this amendment. Reconsideration of the application is respectfully requested.

Applicants would like to advise the Examiner that an IDS was submitted on April 29, 2004, but that the Examiner-initialed copies of the IDS forms have not yet been received by the Applicants. Applicants respectfully look forward to timely receipt of the initialed IDS forms.

Applicants would like to take this opportunity to thank the Examiner for joining Groups I and II for prosecution. In addition, Applicants believe that the following remarks place claims 1-24 in condition for allowance. Therefore, under M.P.E.P § 821.04, if Applicant elects claims directed to the product, and the product claims are allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claims must be rejoined. Process claims, which depend from, or otherwise include all the limitations of the patentable product, will be entered as a matter of right. Therefore, Applicants respectfully request action on the merits of all claims, including Group III.

The claims are rejected in various combinations under 35 USC § 102(b) and 35 USC § 103(a). Each of these rejections is addressed below in the order set forth by the Examiner.

I. THE PRESENT INVENTION

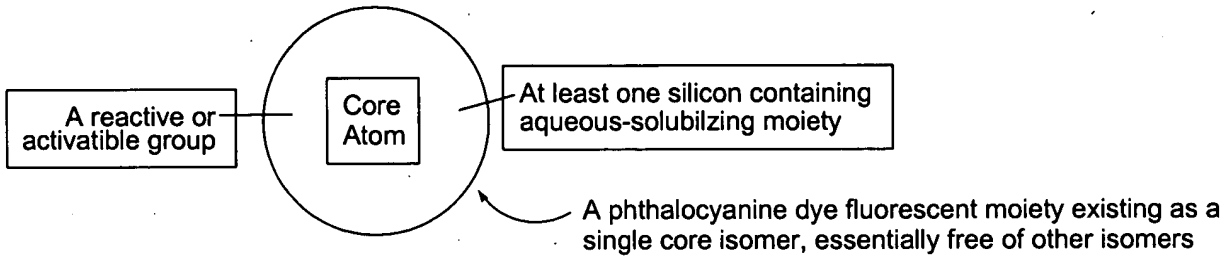
Applicants note that the present invention encompasses phthalocyanine dyes, a process for making such dyes, and a kit for labeling a biomolecule with a phthalocyanine dye of the present invention. As set forth in claim 1 of the instant application, the phthalocyanine dyes of the present invention have the following characteristics:

1. they are each a luminescent fluorophore moiety;
2. having at least one silicon containing aqueous-solubilizing moiety;
3. a core atom selected from the group consisting of Si, Ge, Sn, and Al;

4. existing as a single core isomer, essentially free of other isomers; and

5. a reactive or activatible group.

In addition, the "silicon containing aqueous-solubilizing moiety" and the "reactive or activatable group" are each separately attached to the phthalocyanine core. In an effort to elucidate the present invention, Applicants provide the following illustration demonstrating the separate elements of a representative phthalocyanine dye of the present invention:



II. REJECTIONS UNDER 35 USC § 102(b)

Claims 1-24 have been rejected under 35 USC § 102(b) as allegedly being anticipated in view of US Pat. Nos. 5,484,778 ("the '778 patent") and 5,166,197 ("the '197 patent"), as well as Rywkin *et al.* ("the Transfusion paper") and Rywkin *et al.* ("the Photochem paper"). Applicants respectfully traverse the rejections in view of the comments below.

A claim is considered to be anticipated under 35 USC § 102(b) if "the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States." In order for a claim to be anticipated by a reference, the reference must teach every element of the claim (MPEP § 2131):

> A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

As discussed in detail below, the presently claimed invention is not anticipated in view of any of the cited references as all the references fail to teach every element set forth in the claims of the instant invention.

Applicants note that in order for the claims of the instant application to be anticipated, all of the elements discussed above must be present in a single prior art reference.

A. Claims 1-24 are not anticipated by the '778 patent

The Examiner alleges that the '778 patent teaches phthalocyanine compounds and corresponding conjugates having the exact formula I as in the instant application. Applicants respectfully traverse the rejection.

As the Examiner noted, the disclosure at col. 6, line 5 to col. 7, line 19 and col. 9, line 1 to col. 10, line 25, teach a phthalocyanine dye that can have Si, Ge, Sn, or Al as the core atom. As for aqueous solubilizing moieties, the silicon containing metal ligands of the '778 patent have only tertiary alkyl amines or quaternary alkyl ammonium salts. Applicants submit that one of skill in the art would recognize that the amines and salts of the '778 patent do not provide the aqueous solubilizing properties required by the claims of the instant application.

Furthermore, the phthalocyanine dyes of the '778 patent do not teach or disclose a reactive or activatible group, as is disclosed and claimed in the instant application. The instant application teaches a reactive group as "a moiety on the compound that is capable of chemically reacting with a functional group on a different material ... to form a linkage, such as a covalent linkage." (page 18, lines 9-11) Further properties and exemplary reactive groups are also provided in the instant application (page 18, lines 11-25). In stark contrast to the phthalocyanine dyes of the instant application, the phthalocyanine dyes of the '778 patent are completely *unfunctionalized* except for the metal core and corresponding silicon metal ligands. In addition, Applicants submit that the tertiary alkyl amines and quaternary alkyl ammonium salts taught by the '778 patent on the metal ligands (col. 6, line 6 to col. 7, line 11 and col. 9, line 1 to col. 10, line 6; examples) are not sufficiently chemically reactive with another species so as to form a covalent linkage. Accordingly, the '778 patent fails to teach or disclose a reactive or activatible group attached to the phthalocyanine dye.

As the '778 patent lacks the necessary functional groups to form a covalent linkage with another functional group, and the silicon containing moieties of the '778 patent are not aqueous solubilizing moieties, the '778 patent fails to provide all the elements of the claims

of the instant application. Thus, the '778 patent does not anticipate the claims of the instant application. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection.

B. Claims 1-24 are not anticipated by the '197 patent

The Examiner alleges that the '197 patent teaches phthalocyanine compounds and corresponding conjugates having the exact formula I as in the instant application. Applicants respectfully traverse the rejection in view of the comments below.

As the Examiner noted, the disclosure at col. 6, lines 13-52 and col. 8, lines 5-48, teach a phthalocyanine dye that can have Si or Al as the core atom. As for aqueous solubilizing moieties, the silicon containing metal ligands of the '197 patent have only tertiary alkyl amines or quaternary alkyl ammonium salts. Applicants submit that one of skill in the art would recognize that the amines and salts of the '197 patent do not provide the aqueous solubilizing properties required by the claims of the instant application.

Furthermore, the phthalocyanine dyes of the '197 patent do not teach or disclose a reactive or activatible group, as is disclosed and claimed in the instant application. The instant application teaches a reactive group as "a moiety on the compound that is capable of chemically reacting with a functional group on a different material ... to form a linkage, such as a covalent linkage." (page 18, lines 9-11) Further properties and exemplary reactive groups are also provided in the instant application (page 18, lines 11-25). In stark contrast to the phthalocyanine dyes of the instant application, the phthalocyanine dyes of the '197 patent are completely *unfunctionalized* except for the metal core and corresponding silicon metal ligands. In addition, Applicants submit that the tertiary alkyl amines and quaternary alkyl ammonium salts taught by the '197 patent on the metal ligands (col. 6, lines 30-35; col. 7, line 63 to col. 8, line 28; examples) are not sufficiently chemically reactive with another species so as to form a covalent linkage. Accordingly, the '197 patent fails to teach or disclose a reactive or activatible group attached to the phthalocyanine dye.

As the '197 patent lacks the necessary functional groups to form a covalent linkage with another functional group, and the silicon containing moieties of the '197 patent are

not aqueous solubilizing moieties, the '197 patent fails to provide all the elements of the claims of the instant application. Thus, the '197 patent does not anticipate the claims of the instant application. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection.

C. Claims 1-24 are not anticipated by the Transfusion paper

The Examiner alleges that the Transfusion paper teaches phthalocyanine compounds and corresponding conjugates having the exact formula I as in the instant application. Applicants respectfully traverse the rejection in view of the comments below.

As the Examiner noted, the disclosure in the abstract at page 414 teach a phthalocyanine dye that can have Si or Al as the core atom. As for aqueous solubilizing moieties, the silicon containing metal ligands of the Transfusion paper have only tertiary alkyl amines or quaternary alkyl ammonium salts. Applicants submit that one of skill in the art would recognize that the amines and salts of the Transfusion paper do not provide the aqueous solubilizing properties required by the claims of the instant application.

Furthermore, the phthalocyanine dyes of the Transfusion paper do not teach or disclose a reactive or activatible group, as is disclosed and claimed in the instant application. The instant application teaches a reactive group as "a moiety on the compound that is capable of chemically reacting with a functional group on a different material ... to form a linkage, such as a covalent linkage." (page 18, lines 9-11) Further properties and exemplary reactive groups are also provided in the instant application (page 18, lines 11-25). In stark contrast to the phthalocyanine dyes of the instant application, the phthalocyanine dyes of the Transfusion paper are completely *unfunctionalized* except for the metal core and corresponding silicon metal ligands. In addition, Applicants submit that the tertiary alkyl amines and quaternary alkyl ammonium salts taught by the Transfusion paper on the metal ligands (abstract, page 414; 414-420) are not sufficiently chemically reactive with another species so as to form a covalent linkage. Accordingly, the Transfusion paper fails to teach or disclose a reactive or activatible group attached to the phthalocyanine dye.

As the Transfusion paper lacks the necessary functional groups to form a covalent linkage with another functional group, and the silicon containing moieties of the Transfusion paper are not aqueous solubilizing moieties, the Transfusion paper fails to provide all the elements of the claims of the instant application. Thus, the Transfusion paper does not anticipate the claims of the instant application. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection.

D. Claims 1-24 are not anticipated by the Photochem paper

The Examiner alleges that the Photochem paper teaches phthalocyanine compounds and corresponding conjugates having the exact formula I as in the instant application. Applicants respectfully traverse the rejection in view of the comments below.

As the Examiner noted, the disclosure in the abstract at page 165 teaches a phthalocyanine dye that can have Si or Al as the core atom. As for aqueous solubilizing moieties, the silicon containing metal ligands of the Photochem paper have only quaternary alkyl ammonium salt functional group, or a metal ligand having no silicon. Applicants submit that one of skill in the art would recognize that the amines and salts of the Photochem paper do not provide the aqueous solubilizing properties required by the claims of the instant application.

Furthermore, the phthalocyanine dyes of the Photochem paper do not teach or disclose a reactive or activatible group, as is disclosed and claimed in the instant application. The instant application teaches a reactive group as "a moiety on the compound that is capable of chemically reacting with a functional group on a different material ... to form a linkage, such as a covalent linkage." (page 18, lines 9-11) Further properties and exemplary reactive groups are also provided in the instant application (page 18, lines 11-25). In stark contrast to the phthalocyanine dyes of the instant application, the phthalocyanine dyes of the Photochem paper are completely *unfunctionalized* except for the metal core and corresponding silicon metal ligands. In addition, Applicants submit that the quaternary alkyl ammonium salt functional groups taught by the Photochem paper on the metal ligands (abstract, page 165; 166-170), are not sufficiently chemically reactive with another species so as to form a covalent linkage.

Accordingly, the Photochem paper fails to teach or disclose a reactive or activatible group attached to the phthalocyanine dye.

As the Photochem paper lacks the necessary functional groups to form a covalent linkage with another functional group, and the silicon containing moieties of the Photochem paper are not aqueous solubilizing moieties, the Photochem paper fails to provide all the elements of the claims of the instant application. Thus, the Photochem paper does not anticipate the claims of the instant application. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection.

III. REJECTIONS UNDER 35 USC § 103(a)

Claims 1-24 have been rejected under 35 USC § 103(a) as allegedly being obvious in view of US Pat. Nos. 5,484,778 ("the '778 patent") and 5,166,197 ("the '197 patent"), as well as Rywkin *et al.* ("the Photochem paper"). Applicants respectfully traverse the rejection in view of the comments below.

A claim is considered obvious "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains" (35 USC § 103(a)). Several elements are necessary in order to make a prima facie case of obviousness (MPEP § 2143):

> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As noted above, the phthalocyanine dyes of claim 1 of the instant application require the presence of at least the following elements:

1. they are each a luminescent fluorophore moiety;
2. having at least one silicon containing aqueous-solubilizing moiety;
3. a core atom selected from the group consisting of Si, Ge, Sn, and Al;
4. existing as a single core isomer, essentially free of other isomers; and

5. a reactive or activatible group.

Accordingly, in order for the claims of the instant application to be obvious in view of the cited art, each reference must (1) provide some suggestion or motivation to modify the reference in order to teach all of the above elements; (2) provide a reasonable expectation of success of making a compound of the instant application; and (3) teach or suggest at least the above listed claim elements. As discussed in detail below, none of the cited references satisfies all three requirements under MPEP § 2143.

A. Claims 1-24 are not obvious in view of the '778 patent

The Examiner alleges that the generic structure taught in the '778 patent embraces the compounds of the instant application, and that a prior art disclosed genus of useful compounds is sufficient to render *prima facie* obvious a species falling within a genus. Applicants respectfully traverse the rejection in view of the comments below.

As discussed above, the '778 patent must satisfy all the elements of the claims for an obviousness rejection under MPEP § 2143. The instant application teaches a reactive group as "a moiety on the compound that is capable of chemically reacting with a functional group on a different material ... to form a linkage, such as a covalent linkage." (page 18, lines 9-11) Further properties and exemplary reactive groups are also provided in the instant application (page 18, lines 11-25).

The '778 patent, however, fails to provide any teaching or suggestion of a phthalocyanine dye having a reactive or activatible group, instead teaching merely a silicon containing metal ligand having tertiary alkyl amine and quaternary alkyl ammonium salt functional groups. In the absence of a teaching of a reactive or activatible group, the '778 patent cannot, and does not, provide a suggestion or motivation to modify the compounds therein in order to provide a phthalocyanine dye having a reactive or activatible group. Furthermore, the '778 patent provides no reasonable expectation of success of making a phthalocyanine dye having a reactive or activatible group.

In addition, the '778 patent fails to teach or suggest the benefit of using fluorescent phthalocyanine dyes. In fact, the '778 patent teaches away from using fluorescent

phthalocyanine dyes. The '778 patent teaches the use of phthalocyanine dyes as photosensitizers for photodynamic therapy, wherein the photosensitizers of the '778 patent cause a photochemical reaction that results in the death of a cell when excited *in vivo* (col. 1, lines 44-55). In stark contrast to the '778 patent, the phthalocyanine dyes of the instant application fluoresce upon excitation.

As the '778 patent fails to teach or suggest the reactive or activatible groups of the instant application, as well as failing to teach phthalocyanine dyes as good fluorophores, the claims of the instant application are not obvious in view of the '778 patent. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection.

B. Claims 1-24 are not obvious in view of the Photochem paper

The Examiner alleges that the generic structure taught in the Photochem paper embraces the compounds of the instant application, and that a prior art disclosed genus of useful compounds is sufficient to render *prima facie* obvious a species falling within a genus. Applicants respectfully traverse the rejection in view of the comments below.

As discussed above, the Photochem paper must satisfy all the elements of the claims for an obviousness rejection under MPEP § 2143. The instant application teaches a reactive group as "a moiety on the compound that is capable of chemically reacting with a functional group on a different material ... to form a linkage, such as a covalent linkage." (page 18, lines 9-11) Further properties and exemplary reactive groups are also provided in the instant application (page 18, lines 11-25).

The Photochem paper, however, fails to provide any teaching or suggestion of a phthalocyanine dye having a reactive or activatible group, instead teaching merely a silicon containing metal ligand having a quaternary alkyl ammonium salt functional group, or a metal ligand having no silicon. In the absence of a teaching of a reactive or activatible group, the Photochem paper cannot, and does not, provide a suggestion or motivation to modify the compounds therein in order to provide a phthalocyanine dye having a reactive or activatible group. Furthermore, the Photochem paper provides no reasonable expectation of success of making a phthalocyanine dye having a reactive or activatible group.

In addition, the Photochem paper fails to teach or suggest the benefit of using fluorescent phthalocyanine dyes. The Photochem paper teaches the use of phthalocyanine dyes as photosensitizers for photodynamic therapy, wherein the photosensitizers of the Photochem paper cause a photochemical reaction that results in the death of a cell when excited *in vivo* (abstract, 165-170). This is different than the subject application wherein the phthalocyanine dyes of the instant application fluoresce upon excitation.

As the Photochem paper fails to teach or suggest the reactive or activatible groups of the instant application, as well as failing to teach phthalocyanine dyes as good fluorophores, the claims of the instant application are not obvious in view of the Photochem paper. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection.

C. Claims 1-24 are not obvious in view of the '197 patent

The Examiner alleges that the generic structure taught in the '197 patent embraces the compounds of the instant application, and that a prior art disclosed genus of useful compounds is sufficient to render *prima facie* obvious a species falling within a genus. Applicants respectfully traverse the rejection in view of the comments below.

As discussed above, the '197 patent must satisfy all the elements for an obviousness rejection under MPEP § 2143. The instant application teaches a reactive group as "a moiety on the compound that is capable of chemically reacting with a functional group on a different material ... to form a linkage, such as a covalent linkage." (page 18, lines 9-11) Further properties and exemplary reactive groups are also provided in the instant application (page 18, lines 11-25).

The '197 patent, however, fails to provide any teaching or suggestion of a phthalocyanine dye having a reactive or activatible group, instead teaching merely a silicon containing metal ligand having tertiary alkyl amine and quaternary alkyl ammonium salt functional groups. In the absence of a teaching of a reactive or activatible group, the '197 patent cannot, and does not, provide a suggestion or motivation to modify the compounds therein in order to provide a phthalocyanine dye having a reactive or activatible group. Furthermore, the

'197 patent provides no reasonable expectation of success of making a phthalocyanine dye having a reactive or activatible group.

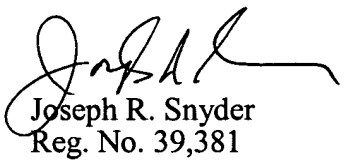
In addition, the '197 patent fails to teach or suggest the benefit of using fluorescent phthalocyanine dyes. In fact, the '197 patent teaches away from using fluorescent phthalocyanine dyes. The '197 patent teaches the use of phthalocyanine dyes as photosensitizers for photodynamic therapy, wherein the photosensitizers of the '197 patent cause a photochemical reaction that results in the death of a cell when excited *in vivo* (col. 1, lines 35-37). In stark contrast to the '197 patent, the phthalocyanine dyes of the instant application fluoresce upon excitation.

As the '197 patent fails to teach or suggest the reactive or activatible groups of the instant application, as well as failing to teach phthalocyanine dyes as good fluorophores, the claims of the instant application are not obvious in view of the '197 patent. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection.

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 925-472-5000.

Respectfully submitted,



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